grains, exert the same effect as when given in moderate doses by the mouth, and may be very well substituted for these. 11. But this is not the case with large doses, which are never absorbed in sufficient quantities to produce energetic effects. 12. The large intestine will rarely tolerate a larger dose than 30 grains of the sulphate. 13. These conclusions more or less exactly apply to the various substances administered by clysters. 14. The epyretic is notably more favourable to the absorption of medicinal substances than the pyretic condition. 15. The typhoid condition favours such absorption less than other states of phlegmasia. Nevertheless it is more energetic than hitherto supposed, being only about a tenth inferior to the absorption taking place in the pyretic condition. 16. In diabetes, the absorption of medicinal substances appears to be very feeble in the intestine. 17. In certain diseases, the tolerance or intolerance of medicinal substances may depend upon a special susceptibility rather than upon variations in absorption. Thus, in hysteria the tolerance of opium nowise depends upon an absence of absorption, but results from a special susceptibility. 18. The rapidity with which medicinal substances, such as the salts of quinine, are eliminated, is in a direct ratio with the quantity of urine passed. This rapidity is the exact measure of the time which the economy takes to rid itself of the greater part of fixed substances taken medicinally. 19. The absorption of medicinal substances, analogous to the salts of quinine is far more rapid in the young. 20. It is less active in females than in males, in the proportion of a sixth to an eighth. 21. Abstracting from a medicinal effect the portion due to the quantity of the substance absorbed, the remainder gives the measure of the susceptibility of being influenced by the medicinal substance.—*Bulletin de l'Acad.*, tom. xxii.

21. *Case of Communication with the Stomach through the Abdominal Parietes, produced by Ulceration from External Pressure; with Observations on the Cases of Fistula of the Stomach, already recorded.*—This is the title of an interesting paper read before the Royal Medical and Chirurgical Society (Nov. 24, 1857) by C. Murchison, M. D. The author had seen the subject of the following history when on a visit to Aberdeen, in May, 1857. The patient was then under the care of Dr. Keith, Professor of Clinical Surgery to the Aberdeen Universities, to whom, also, he was indebted for the details of the case, and for permission to lay them before the society.

Catharine Ross, aged 34, was admitted into the Aberdeen Royal Infirmary, under Dr. Keith, Feb. 19th, 1857. She is the daughter of healthy parents—both still alive; but one of her brothers is epileptic, and of two of her sisters, one is liable to hysterical fits, and the other is idiotic. The patient herself, about the age of 18, became the subject of hysterical symptoms to an extreme degree. On more than one occasion, she has been convicted of feigning diseases, so as to deceive her friends and medical attendants. In 1844, she succeeded, by applying a tight ligature round the shoulder, in producing such a solid œdematous condition of the left arm that it was believed by her medical attendants to be elephantiasis. After two years of unavailing treatment, at her own suggestion she was admitted into the Aberdeen Infirmary, under Dr. Keith, with the object of having her arm amputated. Dr. Keith, however, exposed the fraud, and three weeks' confinement in a strait waistcoat cured the arm. Some years after this, she fancied she had heart disease, and a seton was introduced into the epigastrium by her medical attendant. This seton was allowed to ulcerate out, and the patient contrived to keep the resulting ulcer from healing by making constant pressure upon it with a copper penny-piece. The ulceration continued to advance, and after three years, viz., on March 2d, 1854, it penetrated the stomach, this organ having previously contracted adhesions to the abdominal parietes. On removing the dressings, on this day, a quantity of fluid, with a piece of biscuit and orange-peel escaped from the opening. This opening continued to enlarge, and the only way she could retain her food was by keeping it closed with a gutta-percha plug.

On her admission into the Aberdeen Infirmary in 1857, the opening was situated partly in the epigastrium and partly in the umbilical regions, measuring four inches transversely, and three vertically. When the plug was re-

moved, everything she swallowed immediately escaped from the opening; and if she raised herself up or coughed, the whole stomach became everted. The mucous membrane was of a vermilion red colour, and disposed in rugæ, along which undulatory movements could be observed. Blue litmus paper applied to the moist surface of the empty stomach was not reddened. The stomach could be manipulated in the freest manner without pain, the only effect being a slight feeling of faintness or nausea. The integuments surrounding the opening were red, glistening, and tender. Her appetite was good, often ravenous; and she could eat and digest any kind of food. She was much troubled with thirst, and had only one motion of the bowels in twelve days. For nine years, she had been confined to bed, but more from pretended than real ailments; so that, at last, her joints had become stiff, and she was unable to stand.

The author then gave an account of an experiment which had been performed upon the patient by Dr. Keith to demonstrate the mechanism of vomiting. From this it would appear that there is first contraction of the pyloric end of the stomach itself, but that the evacuation of the organ is chiefly caused by its compression, from the simultaneous contraction of both the diaphragm and recti and oblique muscles.

Dr. Murchison then gave a brief abstract of all the cases of fistulæ opening into the stomach from without, which he had been able to collect from the records of medicine and surgery during the last three hundred years. They amounted to twenty-five in number. He then proceeded to make some general observations on these cases, under the following heads:—

A. *The Causes of Gastro-cutaneous Fistulæ.* I. *Mechanical Injuries*, 7 cases. —1. Incised wounds of abdomen penetrating stomach, and ending in permanent fistulæ, 3 cases. 2. Gun-shot wounds, 2 cases. 3. A blow over stomach, ending in abscess, which opens both externally and into stomach, 1 case. 4. Ulceration from without, caused by pressure, 1 case.

II. *Disease*, 18 cases.—1. Cancer of stomach, 6 cases. 2. Simple perforating ulcer from stomach, probably 12 cases. 3. An abscess, originating external to the stomach, and opening both into this organ and externally, may have been the cause in one or two cases.

B. *The Situation, Size, and other Characters of the External Opening.*—In none of the cases hitherto recorded did the opening at all equal in size that which exists in Catharine Ross.

C. *Escape of Food swallowed by the Abdominal Opening.*—This was observed in all the cases; but in six, fluids only are noted as having escaped. In the case of St. Martin, the necessity of an artificial plug became, after a time, superseded by the formation of a natural one, from a fold of the mucous membrane of the stomach. The author pointed out that the escape of food, recently swallowed, from a fistulous opening in the abdomen did not necessarily depend upon a direct opening into the stomach.

D. *Duration of the Fistula, and possibility of Cure.*—In cases resulting from cancer of the stomach, death, as might be expected, speedily results, three months being the longest period that a patient has survived the fistula. On the other hand, where wound or simple ulcer of the stomach has been the cause, the patients have generally lived many years, and apparently enjoyed good health. One case is on record of a woman who lived for twenty-seven years with a fistula into the stomach; and the opening in St. Martin's stomach has existed for thirty-five years, he being still alive, and in good health. As to the question of cure, the author stated that in four of the cases the opening appears to have closed spontaneously; and in two others the obliteration was the result of treatment. In none of the cases was any cutting operation resorted to.

E. *General Health of Persons affected with Gastro-cutaneous Fistulæ.*—In permanent fistulæ, the general health has, in most cases, been wonderfully good. The chief abnormal symptoms have been great thirst, increased appetite, obstinate constipation, deficient secretion of urine, and in women, amenorrhœa.

F. *The Physiological Observations which have been made in cases of Gastro-cutaneous Fistulæ.*—In six of the cases, observations had been made as to the appearance of the gastric mucous membrane and the movements of the

stomach, etc. Out of four cases in which the colour has been noted, it has been a bright vermilion red in three; but in the case of Alexis St. Martin it was a "pale pink." Movements of the stomach, for the most part of an undulatory nature, have been observed in five of the cases. In three of the cases, irritation of the mucous membrane has been observed to give rise to nausea and faintness, but not to cause any pain.

The author then proceeded to notice the various theories which have been entertained as to the mechanism of the act of vomiting, and stated that, from all the observations which had been made, including that upon Catharine Ross, the following conclusions might be arrived at: 1. That the act of vomiting is produced by the contraction of both the stomach and abdominal muscles. 2. That the contraction of the stomach is limited to the pyloric extremity, and has for its main object the closure of the pyloris. 3. That the chief part of the act is effected by the contraction of both the diaphragm and recti obliquo muscles.

In three of the cases, observations had been made on the chemical and physical characters of the gastric juice, and on its digestive powers over different articles of diet, viz., on Magdelaine Goré, in Paris, at the commencement of the present century, by M. Clarion; on Alexis St. Martin, by Drs. Beaumont, Dunglison, and Smith; and on a female, at Dorpat, in 1853, by Messrs. Otto von Grünewaldt and Ernest von Schroeder. The nature of the results arrived at in each of these cases was briefly alluded to, and they were stated to be of a somewhat conflicting character.

No experiments, as regards the gastric juice, have as yet been undertaken in the case of Catharine Ross. Although the fistula in her case affords unparalleled opportunities for making such experiments, the author doubted much if the results obtained would be of much value in her present debilitated state of health. He observed, however, that for some months she had been improving in strength, and expressed a hope that she might yet become a fit subject for experiment.

The paper was illustrated with numerous photographs and drawings of Catharine Ross, and of several of the other recorded cases of gastro-cutaneous fistulæ.—*Med. Times and Gaz.*, Dec. 5, 1857.

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22. *Sugar and Diabetes.*—In our previous No., p. 506, we noticed some cases of diabetes treated with sugar. Dr. Bunn has since related (*Med. Times and Gaz.*, May 22d, 1858) another case of diabetes treated by this plan. The subject of it was a widow aged 53, for a considerable time affected with diabetes, admitted into the Bristol Royal Infirmary 11th March, 1858.

"The symptoms which first arrested our attention were frequent calls to make water, with great increase in the quantity passed, which amounted to several quarts daily; insatiable thirst, progressive weakness, and loss of flesh; and severe pruritus of the external parts. These complaints had come on rather suddenly about fifteen months before admission, in immediate sequel to severe mental anxiety. During the interval, she had been for some time an out-patient of the Infirmary, and subsequently, and for a period of rather more than two months, a patient at the Clifton Dispensary. She had never before, within her recollection, had any illness requiring medical attendance.

"When admitted, her debility and emaciation were extreme. The degree of wasting may be estimated by the fact that when placed in the weighing machine she was found to weigh only sixty-five pounds. She was unable to stand or even sit up in bed, without being supported. The skin was peculiarly harsh and dry; the pulse 100. On the day after her admission, and for many subsequent days, the tongue was dry and brown. Her nights were much disturbed by calls to make water, and her thirst was very great. There was a hectic flush on the cheek, and she was much harassed by frequent dry cough and by pains of the chest. Although there were no physical signs of lung-deposit, my impression was that she was most probably the subject of tubercle.

"She had reached, in fact, what Dr. Pront describes as 'the last and usually the briefest' stage of diabetes.